DATE: 30TH OCTOBER 2024 **TIME: 9.30 A.M. – 12.30 P.M**

Part B – 02 Short Answer Questions (20 Marks)

1.

1.1 List one (01) specific application relevant to each microscope type. (04 marks)

Type of microscope	Specific useful application
Compound (Brightfield)	
Phase contrast	
Darkfield	
Electron	

1.2 List three (03) uses of staining in microbiology. (03 marks)

I. .....

II. .....

III. .....

1.3 List three (03) advantages and disadvantages of Polymerase Chain Reaction. (03 marks)

Advantages	Disadvantages

Index No: .....

2.

2.1 Name four (04) key factors that influence the risk of infection. (04 marks)

I. .....

II. .....

III. .....

IV. .....

2.2 List three (03) preservatives used in pharmaceutical preparations. (03 marks)

I. .....

II. .....

III. .....

2.3 What are the critical quality requirements and preparation methods for water for injections according to pharmacopoeial standards? (02 marks)

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2.4 Name the commonly used test for the detection of endotoxins in water. (01 mark)

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Index No.....

Part C – 04 Structured Essay Questions (60 Marks)

1.

1.1 Define the term "Immunity". (01 mark)

1.2 Name two (02) main categories of "acquired immunity" and briefly define each type. (02 marks)

1.3 List two (02) mechanisms of the body concerning innate immunity. (02 marks)

1.4 Briefly explain the following. (10 marks)

a) Role of cells in innate immunity

b) The body and its reaction to infection

2. A 35-year-old man arrives at the emergency department after a bee sting. Within minutes, he develops swelling, hives, difficulty in breathing, and chest tightness. He was treated with epinephrine.

2.1 What type of hypersensitivity reaction has occurred in the above patient? (02 marks)

2.2 Mention the underlying immunological mechanism responsible for this patient. (04 marks)

2.3 Briefly explain the term "Autoimmunity" by giving examples. (04 marks)

2.4 The patient has been diagnosed with Myasthenia Gravis in addition to the acute reaction. Name the disease category Myasthenia Gravis belongs to, according to the classification of autoimmune diseases giving reasons. (05 marks)

3.

3.1 Define the term "preservatives". (02 marks)

3.2 List three (03) ways that microbes can degrade pharmaceutical products. (03 marks)

3.3 Briefly explain the actions taken by pharmaceutical manufacturing companies to prevent contamination in their premises, focusing on areas (a) and (b). (10 marks)

a) Cleaning and disinfection

b) Self-inspection

4. Parasitic diseases are related to the immune system in many ways, from evasion strategies to immune-mediated damage.

4.1 Define "Immunoprophylaxis" and mention how it is used in the prevention of parasitic infections. (04 marks)

4.2 Mention the difference between live vaccines and live-attenuated vaccines. (02 marks)

4.3 What is herd immunity, and how does it protect against parasitic diseases? (03 marks)

4.4 Briefly describe the following disease conditions. (06 marks)

a) Amoebiasis
b) Malaria